

Notice of Allowability

Application No.

10/642,299

Examiner

Krishnan S. Menon

Applicant(s)

CHEN ET AL.

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed 5/30/06.
2. ☒ The allowed claim(s) is/are 4,5 and 7-9; RENUMBERED 1-5.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Nick Bromer on 6/12/06.

The application has been amended as follows:

In the Specification as amended on 5/30/06, the new paragraph inserted between lines 13 and 14 of page 4 is amended to read as follows:

- -

Figs. 4 and 5 show the structures 1, 2, and 3 exploded from their assembled combination and retaining their assembled orientations. Figs. 4 and 5 show that, in the assembly, the channels 120 of channel structure 1 are parallel to the channels 220 of channel structure 2. ~~The drawing shows that the channels 120 are all equal in width, and that the channels 220 are all equal in width.~~

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The specification was so amended because the deleted portion had no support in the original disclosure.

In the claims, claims were amended to overcome some new matter issues and to make them in condition for allowance.

List of amended claims follow, starting on a fresh page.

Amended Claims List

1-3. (canceled)

4. (previously presented): The micro-filter as claimed in claim 9, wherein the filtering channel structures are respectively attached to the through channel structures by an anode joint.

5. (previously presented): The micro-filter as claimed in claim 9, wherein the filtering channel structures and the through channel structures are made of a silicon wafer.

6. (cancelled)

7. (previously presented): The micro-filter as claimed in claim 9, comprising
a base structure connected to a bottom of the through channel structures and
having a plurality of through hole therein to strengthen the micro-filter.

8. (currently amended): The micro-filter as claimed in claim 9 ~~claim 4~~, wherein the plurality of filtering channel structures and the plurality of through channel structures are made of the same ~~a unitary~~ material and ~~have a same thickness~~.

9. (currently amended): A micro-filter comprising:

Art Unit: 1723

a plurality of filtering channel structures, each including a first through hole and two first channel portions opposite to each other on both sides of the first through hole, wherein each first channel portion consists of a plurality of first channels, each of the first channels includes a respective first opening, ~~all of the first openings have a same first width,~~ and the first channels are parallel to each other; and

a plurality of through channel structures, each including two second through holes aligned with the first channel portions respectively and a second channel portion located between ~~adjacent to the two~~ second through holes ~~on both sides thereof,~~ wherein the second channel portion consists of a plurality of second channels parallel to each other, each of the second channels includes a respective second opening, ~~and all of the second openings have a same second width;~~

wherein the plurality of the filtering channel structures and the through channel structures are stacked alternately and parallelly over one another, and the width of the first and second openings of the consecutive channel structures are set to separate blood cells to leukocytes, erythrocytes, hematoblasts and serum, in that order.

~~wherein the filtering channel structures and the through channel structures are stacked alternately over each other, all the channels of the structures are parallel, and the width of the opening of channels is always smaller than that of channels stacking over thereon.~~

Allowable Subject Matter

Claims 4,5 and 7-9 are allowed.

The following is an examiner's statement of reasons for allowance: the closest prior arts are Chan et al (US 2004/0053422), Breuer et al (US 6,409,072) and Wegeng et al (US 5,811,062). Wegeng teaches a stacked heat exchanger with channels and holes, but the holes are not through holes, and the structure cannot function for blood cells separation as claimed. Breuer teaches a stack of channeled plates with through holes, but the channels are not parallel in adjacent plates of the stack, and would not function as the claimed blood filter. Chan teaches a stack of plates with channels, through holes and filters, but the channel openings do not function as filters, filters are inserted in the channels; and there are no plurality of filtering channels as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Drawings

The amended drawing for Figure 5, submitted 5/30/06, is acceptable. The amendment was entered.

Art Unit: 1723

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Krishnan S Menon
Examiner
Art Unit 1723